



UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. |
|-----------------|-------------|----------------------|---------------------|
|-----------------|-------------|----------------------|---------------------|

09/498,949 02/04/00 RODAWAY

S 064621F153-U

DARBY & DARBY P C
805 Third Avenue
New York NY 10022

HM22/0705

EXAMINER

FRONDA, C

ART UNIT

PAPER NUMBER

1652

DATE MAILED:

07/05/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

BEST AVAILABLE COPY

Office Action Summary

Application No.
09/498,949

Applicant(s)
Rodaway et al.

Examiner
Christian L. Fronda

Art Unit
1652



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claims 1-39 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- *See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☐ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
- 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other:

Art Unit: 1652

DETAILED ACTION

Election/Restriction

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-8, drawn to a method for identifying a compound that inhibits tryptophan biosynthesis using an *in vitro* assay, said *in vitro* assay being adapted for detecting the activity of tryptophan synthase, classified in class 435, subclass 4.
 - II. Claim 9, drawn to an inhibitor of tryptophan synthase identified by the method of claim 1, classified in class 424, subclass 600.
 - III. Claims 10 and 11, drawn to a method for identifying a compound that can inhibit tryptophan synthase (TS) by selecting chemical modifications of an inhibitor having the formula I, generating a three-dimensional model of the inhibitor of formula I as a complex with TS, determining favorable and unfavorable interactions between TS and the inhibitor of formula I using computer modeling techniques; and designing modifications of the inhibitor of formula I using computer modeling techniques to optimize binding affinity of said inhibition, classified in class 435, subclass 4.
 - IV. Claim 12, drawn to an inhibitor of tryptophan synthase identified by the method of claim 11, classified in class 424, subclass 600.
 - V. Claims 13-19 and 37, drawn to a method for identifying a compound that inhibits tryptophan biosynthesis by determining the structure of the binding site of a tryptophan synthase and modeling a compound into said binding site using computer modeling techniques, classified in class 435, subclass 4.
 - VI. Claim 20, drawn to an inhibitor of tryptophan synthase identified by the method of claim 13, classified in class 424, subclass 600.
 - VII. Claims 21-24, drawn to a method for identifying a compound that inhibits tryptophan biosynthesis by analyzing the conformation of a known inhibitor when bound to tryptophan synthase, designing a compound that mimics the structure of said inhibitor, and improving the structure of the compound, classified in class 435, subclass 4.

Art Unit: 1652

- VIII. Claim 25, drawn to an inhibitor of tryptophan synthase identified by the method of claim 21, classified in class 424, subclass 600.
- IX. Claims 26-28, drawn to a method of identifying a compound that inhibits tryptophan synthase by generating a structural model of a plant tryptophan synthase by homology modeling to a known tryptophan synthase structure and designing a compound that fits into the structure of said generated structural model, classified in class 435, subclass 4.
- X. Claims 29 and 30, drawn to a method for identifying a potential herbicide-resistant tryptophan synthase variant protein, classified in class 435, subclass 7.6.
- XI. Claims 31 and 32, drawn to an *in vitro* assay for quantifying a TS α reaction, classified in class 435, subclass 4.
- XII. Claim 33, drawn to an *in vitro* assay for quantifying a TS β reaction, classified in class 435, subclass 4.
- XIII. Claims 34-35, drawn to a method of identifying a compound that inhibits tryptophan synthase by generating a three-dimensional model of said known inhibitor as a complex with TS, determining favorable and unfavorable interactions between TS and said known inhibitor using computer modeling techniques, and designing modifications of said known inhibitor using computer modeling techniques to optimize binding affinity of said inhibition, classified in 435, subclass 4.
- XIV. Claim 36, drawn to an inhibitor of tryptophan synthase identified by the method of claim 34, classified in class 424, subclass 600.
- XV. Claim 38, drawn to a method for identifying a compound that inhibits tryptophan biosynthesis comprising adding a test compound to an *in vitro* assay, said *in vitro* assay being adapted for detecting tryptophan biosynthesis, classified in class 435, subclass 4.
- XVI. Claim 39, drawn to a method for identifying an organism expressing a potential herbicide-resistant TS variant protein, classified in class 435, subclass 4.

Art Unit: 1652

2. The inventions are distinct, each from the other because of the following reasons:

Inventions of Groups I, III-V, VII, IX-XIII, XV, and XVI are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case, the processes of Groups I, III-V, VII, IX-XIII, XV, and XVI are distinct both physically and functionally; require different process steps, reagents, and parameters; produce different products; and are subject to separate manufacture and sale from each other.

Inventions of Groups II, VI, VIII, and XIV are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). The products of each of the groups are independent chemical entities and require different literature searches.

Inventions of Groups II, VI, VIII, and XIV are unrelated to the processes of Groups XI and XII. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case, the inhibitor of Groups II, VI, VIII, or XIV is not required to practice the processes of Groups XI and XII.

The Invention of Group II is unrelated to the processes of Groups III-V, VII, IX-XIII, XV, and XVI. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case, the inhibitor of Groups II is not required to practice the processes of Groups III-V, VII, IX-XIII, XV, and XVI.

The Invention of Group VI is unrelated to the processes of Groups I, III, IV, VII, IX-XIII, XV, and XVI. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case, the inhibitor of Groups VI is not required to practice the processes of Groups I, III, IV, VII, IX-XIII, XV, and XVI.

The Invention of Group VIII is unrelated to the processes of Groups I, III-V, IX-XIII, XV, and XVI. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case, the inhibitor of Groups VIII is not

Art Unit: 1652

required to practice the processes of Groups I, III-V, IX-XIII, XV, and XVI.

The Invention of Group XIV is unrelated to the processes of Groups I, III-V, VII, IX-XII, XV, and XVI. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case, the inhibitor of Groups XIV is not required to practice the processes of Groups I, III-V, VII, IX-XII, XV, and XVI.

Inventions of Groups I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by another and materially different process such as by generating a structural model of a plant tryptophan synthase by homology modeling to a known tryptophan synthase structure and designing a compound that fits into the structure of said generated structural model.

Inventions of Groups V and VI are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by another and materially different process such as applying a test compound to an *in vitro* assay comprising tryptophan synthase, said *in vitro* assay being adapted for detecting the activity of tryptophan synthase, and selecting a test compound which inhibits the activity of tryptophan synthase.

Inventions of Groups VII and VIII are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by another and materially different process such as applying a test compound to an *in vitro* assay comprising tryptophan synthase, said *in vitro* assay being adapted for detecting the activity of tryptophan synthase, and selecting a test compound which inhibits the activity of tryptophan synthase.

Inventions of Groups XIII and XIV are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as

Art Unit: 1652


claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by another and materially different process such as applying a test compound to an *in vitro* assay comprising tryptophan synthase, said *in vitro* assay being adapted for detecting the activity of tryptophan synthase, and selecting a test compound which inhibits the activity of tryptophan synthase.

3. Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

4. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(I).

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christian L. Fronda whose telephone number is (703)305-1252. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathapura Achutamurthy, can be reached at (703)308-3804. The fax phone number for this Group is (703)308-0294. Any inquiry of a general nature or relating to the status of this application should be directed to the Group 1600 receptionist whose telephone number is (703)308-0196.

CLF


PONNATHAPU ACHUTAMURTHY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600